The building blocks of our organic world are cells. Cells have a huge amount of variation and diversity between their structure and function. In this lab, you will be able to observe cells under various conditions and record what happens to them. You will be observing both animal cells (cheek cells) and plant cells (onion cells). This lab contains two sections:

**Part I**: Observe both the animal cell (cheek cells) and plant cells (onion cells) under a microscope at 10x and 100x magnification. Record anything that you notice about the cell.

1. Make sure to wear safety goggles.
2. Swab the inside of your mouth with a **CLEAN** cotton swab. And wipe the swab on the microscope slide and place a drop of distilled water on the swabbed area. Cover the slide.
3. Observe the slide under 10x magnification, and then observe the slide under 100x magnification. Draw and label any structures that you can see below.
4. Remove the slide carefully.
5. Place a piece of onion on a clean microscope slide and place a drop of distilled water on the onion.
6. Carefully place a drop of iodine on one side of the cover slide.
7. Using a paper towel, draw the iodine under the cover slip and into the onion sample.
8. Observe the slide under 10x magnification, and then observe the slide under 100x magnification. Draw and label any structures that you can see below.

Draw and label any structures that you recognize in the space provided.

|  |  |
| --- | --- |
| Cheek Cell | Onion Cell |
| Notes: | Notes: |

**Part II**: Using what we have learned about hypotonic and hypertonic solutions. Make predictions about what will happen to certain red blood cells that are introduced to a hypotonic and hypertonic solution. You will make a prediction and write a hypothesis for what will happen under each solution. Then to test your hypotheses, follow the instructions below and determine if the red blood cell follows your predictions.

1. Using the prepared animal blood slide, observe the cells under 10x magnification, then 100x magnification and draw the cells in the tables below.
2. Along the edge of the cover slide, place a drop of concentrated salt solution. Draw the solution under the slide using a paper towel (as done in Part 1).
3. Observe the cells under 10x magnification, then 100x magnification and draw what has happened to the cells in the after column of table 1.
4. Remove the slide.
5. Using another prepared animal blood slide, place a drop of distilled water solution. Draw the solution under the slide using a paper towel (as done in Part 1).
6. Observe the cells under 10x magnification, then 100x magnification and draw what has happened to the cells in the after column of table 2.
7. Determine whether or not your findings support your hypotheses.

What do you predict will happen to the red blood cell when introduced to the hypotonic and hypertonic solution?

Formulate what you predict into a structured hypothesis:

For hypertonic solution:

For hypotonic solution:

**Table 1 - Hypertonic:** Draw what you observe in the table below:

|  |  |
| --- | --- |
| What did the red blood cell look like before introduction to the solution? | What did the red blood cell look like after introduction to the solution? |
| Now explain, why do you think this happened? |  |
| Did what you find support your hypothesis? |  |

**Table 2 - Hypotonic:** Draw what you observe in the table below:

|  |  |
| --- | --- |
| What did the red blood cell look like before introduction to the solution? | What did the red blood cell look like after introduction to the solution? |
| Now explain, why do you think this happened? |  |
| Did what you find support your hypothesis? | Explain: |